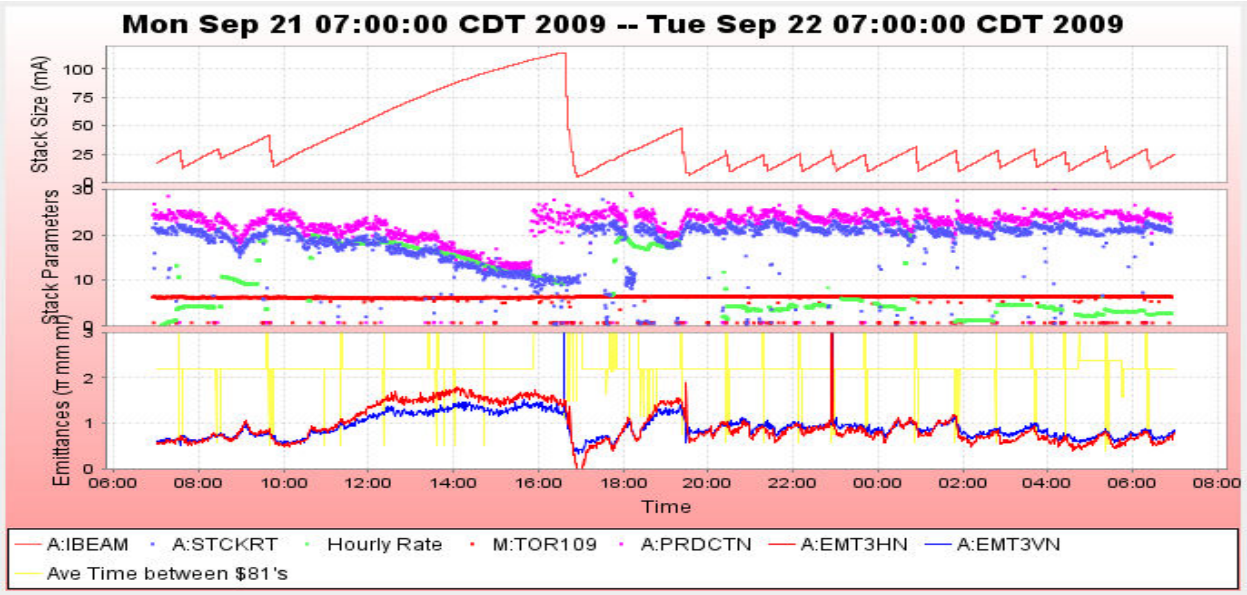
2009-09-22 Tuesday Pbar Notes

Monday, September 21, 2009
2:53 PM

Stacking

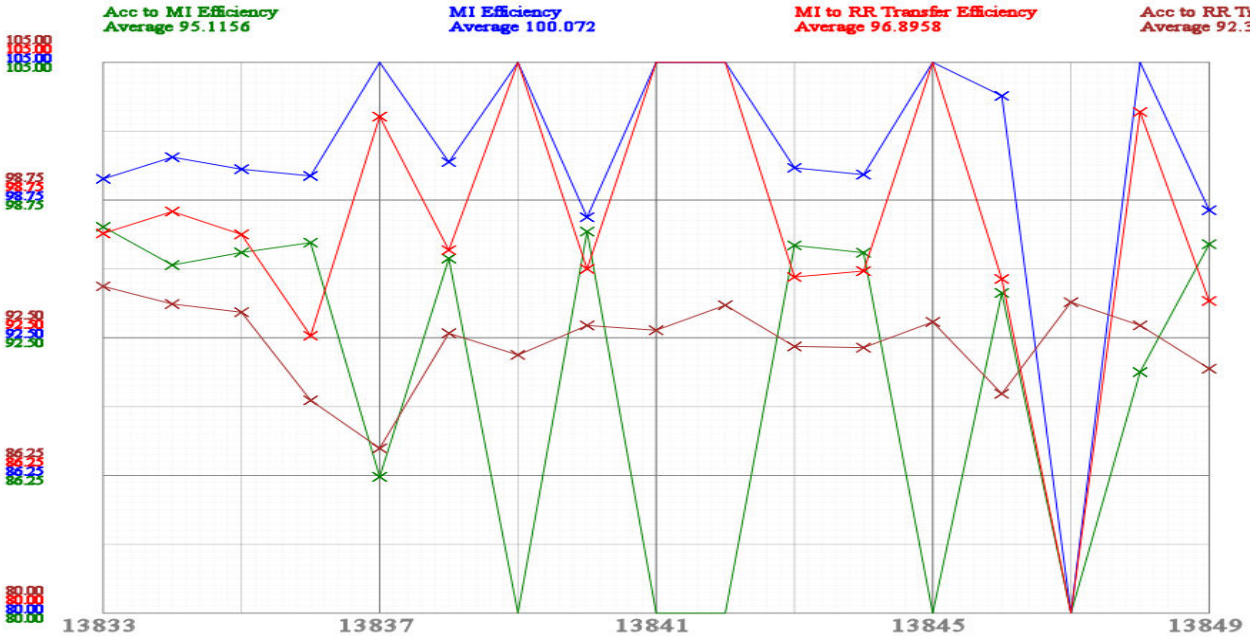
- Stacking Numbers
  - <stack rate> = 18 mA/hr
  - <production> = 22 e-6/p
  - <protons on target> = 5.6e12
  - These numbers are lower due to stacking to the large stack on the day shift, problems with the core 4-8GHz momentum tripping and emittance issues on the day and evening shift. If you take away the large stack
  - <stack rate> = 20.3 mA/hr
  - <production> = 23 e-6/p
- Core 4-8GHz Momentum
  - Yesterday was tripping and power readbacks were not believable.
  - Investigation found uP faults on the TWTPM cards, and one TWT had a real forward diode trip indication that would not clear.
  - Replaced the I/O transition box for the CM-TWTPM
  - Split the controls such that A:CMTWO1 and A:CMTWO2 are controlled by channel 1 and A:CMTWO3 and A:CMTWO4 are controlled by channel 2
  - There are still occasional trips, but things look much better.
- Problems with Stacktail Momentum TWT #17 tripping. Pete fixed the supply.
- Emittance problem was helped with core signal suppression changes.
- GPIB readbacks for the bend busses and accumulator large quad supply had GPIB error. This required a local reset of the ENET box and reboot of AP5001.



Transfers

- Unstacked 419e10 in 41 transfers over 17 sets.
  - Average Transfer efficiency was only 91%.
    - Some due to emittances, which have been addressed.
    - Some due to closure, which have been addressed with fudge factor changes.
  - Our produced pbars are about 75% of the 550e10 we make on a normal day.
  - Main Injector intensity numbers are messed up again.

Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				419.70			380.72	90.71%	86.85%	95.88%	41	17	7.7482	8.0674	1.94
13849	Tuesday, September 22, 2009	6:20	29.89	12.55	18.39	217.58	234.33	16.72	90.90%	96.82%	95.12%	2	1	7.306	7.669	1.951
13848	Tuesday, September 22, 2009	5:23	28.16	12.01	17.23	202.56	218.45	16.03	93.00%	91.86%	96.13%	2	1	7.043	7.486	1.974
13847	Tuesday, September 22, 2009	4:25	27.03	9.85	18.23	186.29	203.34	17.17	94.17%	37.19%	97.07%	2	1	6.127	6.791	1.944
13846	Tuesday, September 22, 2009	3:40	29.04	13.43	16.69	171.82	186.83	14.98	89.78%	94.27%	97.60%	2	1	7.999	8.854	1.984
13845	Tuesday, September 22, 2009	2:48	27.73	12.72	16.01	157.33	172.18	14.93	93.27%	64.10%	97.92%	2	1	7.33	8.112	2.002
13844	Tuesday, September 22, 2009	1:50	27.98	9.64	19.20	140.07	157.69	17.64	91.86%	96.32%	96.27%	2	1	8.54	8.556	1.875
13843	Tuesday, September 22, 2009	0:53	31.22	10.06	22.11	120.19	140.45	20.34	92.00%	96.60%	96.94%	2	1	8.48	8.606	1.854
13842	Monday, September 21, 2009	23:42	24.66	9.36	16.37	105.10	120.41	15.39	94.04%	69.60%	99.82%	2	1	7.257	8.063	1.904
13841	Monday, September 21, 2009	22:56	24.52	10.26	15.34	91.12	105.30	14.24	92.84%	38.61%	97.40%	2	1	9.126	9.344	1.939
13840	Monday, September 21, 2009	22:09	25.14	9.53	16.61	75.83	91.25	15.43	92.91%	97.13%	95.24%	2	1	8.311	8.255	1.911
13839	Monday, September 21, 2009	21:19	24.81	9.73	16.11	61.00	75.85	14.80	91.84%	56.95%	95.44%	2	1	8.189	9.259	1.917
13838	Monday, September 21, 2009	20:27	24.57	9.11	16.46	46.03	61.22	15.24	92.59%	95.97%	96.39%	2	1	8.753	9.068	1.918
13837	Monday, September 21, 2009	19:23	48.07	6.20	44.48	7.93	46.16	38.44	86.43%	90.99%	93.02%	4	1	10.433	9.779	1.899
13836	Monday, September 21, 2009	16:38	114.24	5.16	111.26	207.07	303.57	97.48	87.62%	95.34%	94.96%	6	1	6.721	6.798	1.853
13835	Monday, September 21, 2009	9:39	41.65	13.91	29.53	182.57	209.96	27.61	93.49%	96.23%	96.37%	3	1	7.037	6.969	1.998
13834	Monday, September 21, 2009	8:27	29.27	20.89	9.36	174.41	183.11	8.79	93.98%	96.00%	96.78%	2	1	6.922	7.133	2.113
13833	Monday, September 21, 2009	7:33	28.05	12.78	16.32	159.36	174.79	15.50	94.93%	97.45%	97.29%	2	1	6.146	6.403	1.944



Requests

The Numbers: 7am to 7am

- Stacking
  - Pbars stacked: 427.58 E10
  - Time stacking: 23.86 Hr
  - Average stacking rate: 17.92 E10/Hr

- Uptime
  - Number of pulses while in stacking mode: 37439
  - Number of pulses with beam: 36764
  - Fraction of up pulses was: 98.20%

- The uptime's effect on the stacking numbers
  - Corrected time stacking: 23.43 Hr
  - Possible average stacking rate: 18.25 E10/Hr
  - Could have stacked: 435.43 E10/Hr

- Recycler Transfers

- Pbars sent to the Recycler: 419.69 E10
- Number of transfers : 41
- Number of transfer sets: 17
- Average Number of transfer per set: 2.41
- Time taken to shoot including reverse proton tuneup: 00.14 Hr
- Transfer efficiency: 89.53%

- Other Info
  - Average POT : 5.64 E12
  - Average production: 20.62 pbars/E6 protons

- * Missed one or more A:IBEAM7 events somewhere in the middle of the user selected time span. Calculated time shot using 13 secs per transfer.
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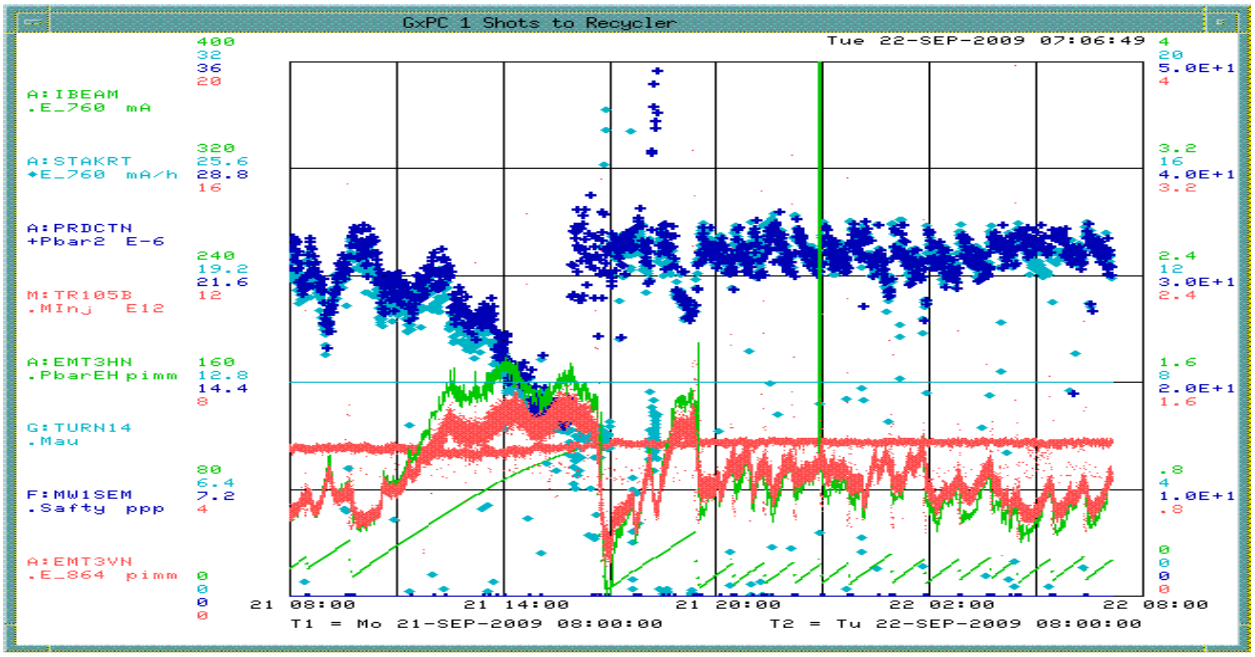
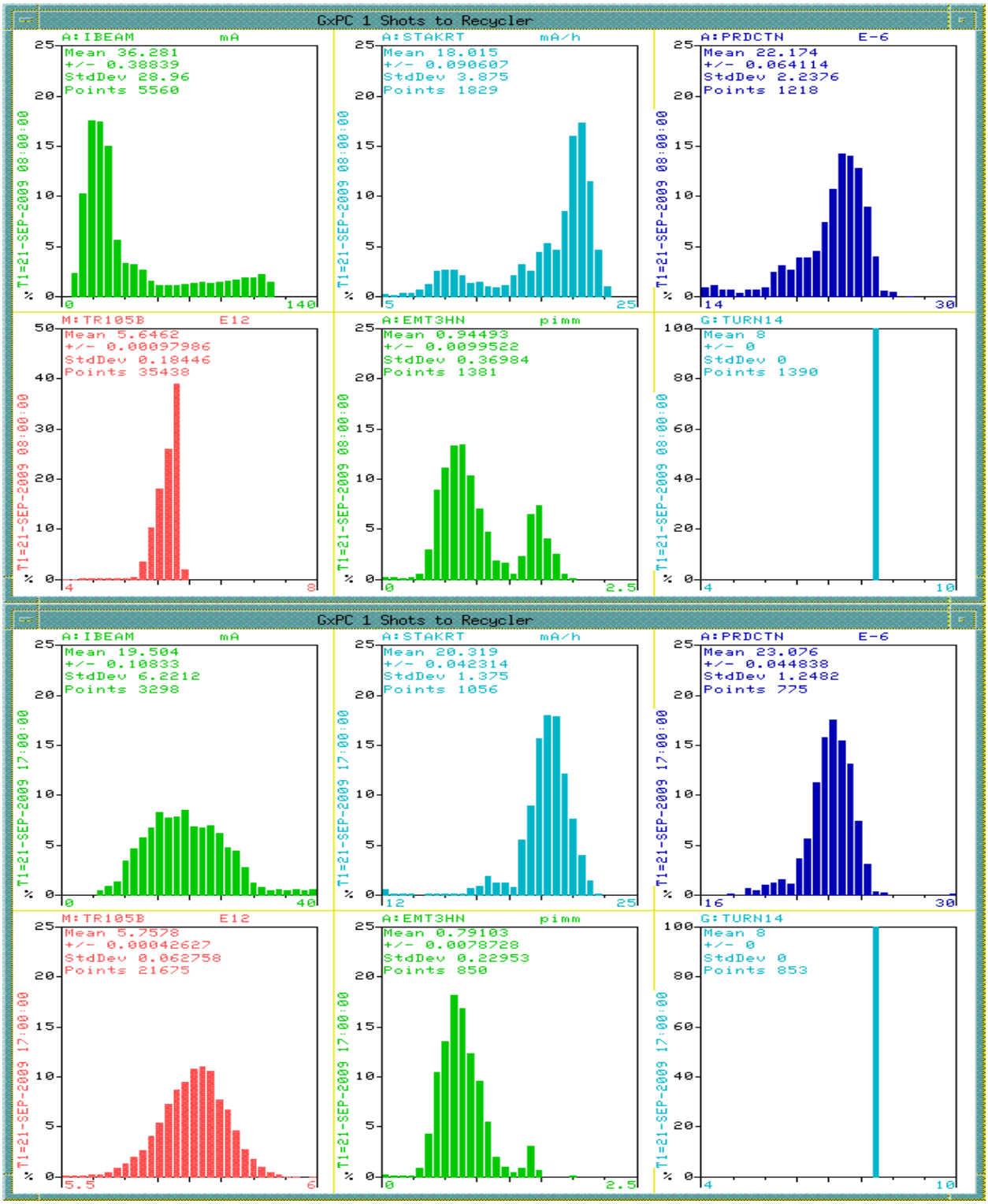
Plots





Logbook Entries:

- Pbar

  - Mon Sep 21 09:23:27- I went out to AP50 to look at the Core Momentum TWT Protection Monitor. TPM #0 showed no activity on the CI card and both PI cards showed uP faults. TPM #1 showed CI card activity but a uP fault for the first PI slot. The second PI card (A:CMTW04) was toggling between Beam On and Standby a few times a second. I put that supply into Local to reduce the wear on the relays. I could still hear the relay in the PI card chattering away.
  - A:CMTW03 has a real fault on the Forward Diode that will not clear. The 37 watts shown on the parameter page is not to be believed. - Dave Peterson

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- -- Mon Sep 21 12:24:24 comment by...McClure -- Replaced the I/O transition box for the CM-TWTPM without much improvement in the behavior of the TPM. Split the controls such that A:CMTWO1 and A:CMTWO2 are controlled by channel 1 and A:CMTWO3 and A:CMTWO4 are controlled by channel 2. The readbacks now appear to read correctly. A:CMTWO4 still trips periodically but we were able to reset it remotely. It is not yet clear what is the source of the problems.
- Pasted from <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar09&action=view&page=last&frame=2&anchor=&hilite=&load=>
- Mon Sep 21 14:20:54-
- coupling V->H in prep for engaging Flusher
- Pasted from <http://www-bd.fnal.gov/cgi-mach/machlog.pl?nb=pbar09&action=view&page=last&frame=2&anchor=&hilite=&load=>

- MCR
- Run Co